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EXAMINER

ZERVIGON, RUDY

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

**MAILED**  
SEP 26 2006  
**GROUP 170**

Application Number: 10/087,558  
Filing Date: February 28, 2002  
Appellant(s): DANDO ET AL.

\_\_\_\_\_  
Jennifer J. Taylor  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed July 5, 2006 appealing from the Office action mailed January 9, 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,225,745	Srivastava; Aseem K.	5-2001
5,395,482	Onda; Shinzaburo et al.	3-1995

**(9) Grounds of Rejection**

The following grounds of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 14-17, 19-21, 31, 32, 34, 37, and 38 are rejected under 35 U.S.C. 102(a) as being anticipated by Srivastava; Aseem K. (US 6,225,745 B1). Srivastava teaches a reactive precursor feeding manifold assembly (12; Figure 1b; column 3; lines 20-44), comprising; a body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber (inherent - needed to convey gases in 38); a first precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a first precursor inlet to the plenum chamber (inherent - needed to convey gases in 38); a second precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a second precursor inlet to the plenum chamber (inherent - needed to convey gases in 38); a purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) to the plenum chamber (inherent - needed to convey gases in 38) which is upstream of both the first and the second plenum chamber (inherent - needed to convey gases in 38) precursor inlets

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(gas feeding connections to left-most pipe 38; Figure 1b) and angled (90° as detailed by both Applicant's Figure 1 and Srivastava's Figure 1b) from the plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) such that a purge-gas flow through the purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) provides a venturi effect within the plenum chamber (inherent - needed to convey gases in 38) relative to the first and second precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) – That a “venturi effect” is present in Srivastava's body is evident when comparing the structure of Srivastava's body with Applicant's body 12, Figure 1. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01). Further, Applicant's claim of gas identity as being “purge gas” or “precursor gas” is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

Srivastava further teaches:

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- i. and the body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) configured to connect with a substrate processing chamber (16; Figure 1b), as claimed by claim 14
- ii. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 wherein the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is angled ( $90^\circ$  as detailed by both Applicant's Figure 1 and Srivastava's Figure 1b) from the plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) by from about  $80^\circ$  to  $100^\circ$ , as claimed by claim 15
- iii. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 wherein the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is angled ( $90^\circ$  as detailed by both Applicant's Figure 1 and Srivastava's Figure 1b) from the plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) by from about  $89^\circ$  to  $91^\circ$ , as claimed by claim 16
- iv. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 further comprising a first valve (any one of 36; Figure 1b) in the first precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) proximate the body (10b; Figure 1b; column 3; lines 20-44), and a second valve (any one of 36; Figure 1b) in the second precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) proximate the body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 17

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- v. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 further comprising structure (interface box between 34 and 38; Figure 1b) on the body (10b; Figure 1b; column 3; lines 20-44) configured to mount the body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with the plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), as claimed by claim 19
- vi. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 wherein the plenum chamber (inherent - needed to convey gases in 38) is longitudinally elongated having a longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) having a first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and a second longitudinal axis end (top of left-most piping 38; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) being proximate the first end (bottom of left-most piping 38; Figure 1b), the plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) being proximate the second end (top of left-most piping 38; Figure 1b), as claimed by claim 20
- vii. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 20 wherein the plenum (inherent - needed to convey gases in 38) chamber purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on the longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 21

- viii. A reactive precursor feeding manifold assembly (12; Figure 1b; column 3; lines 20-44), comprising; a body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber (inherent - needed to convey gases in 38), the body (10b; Figure 1b; column 3; lines 20-44) having a first end (bottom of left-most piping 38; Figure 1b) and an opposing second end (top of left-most piping 38; Figure 1b); a plurality of precursor feed streams (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at respective precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) to the plenum chamber (inherent - needed to convey gases in 38); a purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) to the plenum chamber (inherent - needed to convey gases in 38) which is proximate the first end (bottom of left-most piping 38; Figure 1b) and disposed upstream of the plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b); the body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) disposed at the second end (top of left-most piping 38; Figure 1b) and configured to connect with a substrate processing chamber (16; Figure 1b); and structure (interface box between 34 and 38; Figure 1b) on the body (10b; Figure 1b; column 3; lines 20-44) configured to mount the second end (top of left-most piping



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- 38; Figure 1b) to a substrate processing chamber (16; Figure 1b) with the plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), as claimed by claim 31
- ix. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 wherein the structure (interface box between 34 and 38; Figure 1b) comprises a projection on the body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 32
- x. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 further comprising a valve (any one of 36; Figure 1b) in the respective precursor feed streams (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) proximate the body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 34
- xi. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 wherein the plenum chamber (inherent - needed to convey gases in 38) is longitudinally elongated having a longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) having a first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and a second longitudinal axis end (top of left-most piping 38; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) being proximate the first end (bottom of left-most piping 38; Figure 1b), the plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) being proximate the second end (top of left-most piping 38; Figure 1b), as claimed by claim 37

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- xii. the manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 37 wherein the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on the longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 38

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 18, 33, 35, 36, and 45-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava; Aseem K. (US 6,225,745 B1) in view of Onda; Shinzaburo et al. (US 5,395,482 A). Srivastava is discussed above. Srivastava's gas stream on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's purge gas inlet through a single-inlet valve (any one of 36; Figure 1b) – claim 45. Srivastava further teaches Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's another valve (any one of 36; Figure 1b) inlet is upstream of Srivastava's one valve (any one of 36; Figure 1b) inlet, - claim 47. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b) – claim 48. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) is configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a

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substrate processing chamber (16; Figure 1b) with Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) being substantially vertical – claim 49. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) - claim 50. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) further comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), and wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) – claim 56. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) – claim 59. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) – claim 61.

Srivastava does not teach:

- i. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 further comprising a 3-way valve in Srivastava's first precursor feed stream (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body)

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proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim

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- ii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 33
- iii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 further comprising a 3-way valve in Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 35
- iv. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 further comprising a 3-way valve in Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44), one inlet to the 3-way valve being configured for connection with Srivastava's respective precursor feed stream (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body), another inlet to the 3-way valve being configured for connection with a purge gas line, Srivastava's another inlet being upstream of Srivastava's one inlet, as claimed by claim 36
- v. A reactive precursor feeding manifold assembly (12; Figure 1b; column 3; lines 20-44), comprising; an elongate body (10b; Figure 1b; column 3; lines 20-44) comprising an elongate plenum chamber (inherent - needed to convey gases in 38), Srivastava's plenum

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chamber (inherent - needed to convey gases in 38) having a longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), Srivastava's plenum chamber (inherent - needed to convey gases in 38) having a first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and a second longitudinal axis end (top of left-most piping 38; Figure 1b); Srivastava's plenum chamber (inherent - needed to convey gases in 38) comprising a plurality of precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) received along Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b), Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) including an elongated segment (piping for gas feeding connections to left-most pipe 38; Figure 1b) joining with its plenum chamber (inherent - needed to convey gases in 38) precursor inlet and which is oriented substantially normal to Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); respective multi-inlet valves positioned proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44) in Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body), the respective multi-inlet valves having at least two valve inlets and at least one valve outlet, one of the valve inlets being configured for connection with a reactive precursor source, another of the valve inlets being configured for connection with a purge

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gas line; a purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) to Srivastava's plenum chamber (inherent - needed to convey gases in 38) at Srivastava's first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and upstream of all precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) to Srivastava's plenum chamber (inherent - needed to convey gases in 38); a purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) through a single-inlet valve (any one of 36; Figure 1b), Srivastava's purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) including an elongated segment (piping for gas feeding connections to left-most pipe 38; Figure 1b) joining with Srivastava's purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) and which is substantially aligned on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); and Srivastava's body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) at Srivastava's second longitudinal axis end (top of left-most piping 38; Figure 1b) configured to connect with a substrate processing chamber (16; Figure 1b), as claimed by claim 45

- vi. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein the multi-inlet valves have only two inlets and only one outlet, as claimed by claim 46

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- vii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 48 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 51
- viii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 further comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), the respective multi-inlet valves when Srivastava's body (10b; Figure 1b; column 3; lines 20-44) is so mounted being at least partially received within peripheral lateral confines of a chamber housing of Srivastava's substrate processing chamber (16; Figure 1b), as claimed by claim 52
- ix. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 52 wherein the multi-inlet valves when Srivastava's body (10b; Figure 1b; column 3; lines 20-44) is so mounted are totally received within peripheral lateral confines of said chamber housing of the substrate processing chamber (16; Figure 1b), as claimed by claim 53
- x. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on

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Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 54

- xi. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein, the multi-inlet valves have only two inlets and only one outlet; Srivastava's another valve (any one of 36; Figure 1b) inlet is upstream of Srivastava's one valve (any one of 36; Figure 1b) inlet; and Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 55
- xii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 55 further comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), and wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 57
- xiii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein, the multi-inlet valves have only two inlets and only one outlet; Srivastava's another valve (any one of 36; Figure 1b) inlet is upstream of Srivastava's one valve (any one of 36; Figure 1b) inlet; and further comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44)



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configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), Srivastava's structure (interface box between 34 and 38; Figure 1b) being configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) being substantially vertical, as claimed by claim 58

- xiv. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 58 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 60

Onda teaches:

- xv. Onda's manifold assembly (40; Figure 3) of claim 14 further comprising a 3-way valve (V49; Figure 3) in Onda's first precursor feed stream (70/71; Figure 2) proximate Onda's body (41a; Figure 3), as claimed by claim 18
- xvi. Onda's manifold assembly (40; Figure 3) of claim 31 wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 33
- xvii. Onda's manifold assembly (40; Figure 3) of claim 31 further comprising a 3-way valve (V49; Figure 3) in Onda's respective precursor feed streams (70/71; Figure 2) proximate Onda's body (41a; Figure 3), as claimed by claim 35
- xviii. Onda's manifold assembly (40; Figure 3) of claim 31 further comprising a 3-way valve (V49; Figure 3) in Onda's respective precursor feed streams (70/71; Figure 2) proximate

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Onda's body (41a; Figure 3), one inlet to the 3-way valve (V49; Figure 3) being configured for connection with Onda's respective precursor feed stream (70/71; Figure 2), another inlet to the 3-way valve (V49; Figure 3) being configured for connection with a purge gas line, Onda's another inlet being upstream of Onda's one inlet, as claimed by claim 36 – Applicant's claim of gas identity as being "purge gas" or "precursor gas" is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- xix. A reactive precursor feeding manifold assembly (40; Figure 3), comprising; an elongate body (41a; Figure 3) comprising an elongate plenum chamber (inherent - needed to convey gases in 41a), Onda's plenum chamber (inherent - needed to convey gases in 41a) having a longitudinal axis (axis of 41a; Figure 3), Onda's plenum chamber (inherent - needed to convey gases in 41a) having a first longitudinal axis end (bottom 41a; Figure 3) and a second longitudinal axis end (top of 41a; Figure 3); Onda's plenum chamber (inherent - needed to convey gases in 41a) comprising a single inlet received along Onda's longitudinal axis (axis of 41a; Figure 3); respective precursor feed streams (70/71; Figure 2) on Onda's body (41a; Figure 3) feeding to Onda's plenum chamber

(inherent - needed to convey gases in 41a) precursor inlet, Onda's respective precursor feed streams (70/71; Figure 2) including an elongated segment (piping for gas feeding connections to 70/71; Figure 3) joining with its plenum chamber (inherent - needed to convey gases in 41a) precursor inlet and which is oriented substantially normal to Onda's longitudinal axis (axis of 41a; Figure 3); respective multi-inlet valve (V49; Figure 3) positioned proximate Onda's body (41a; Figure 3) in Onda's respective precursor feed streams (70/71; Figure 2), the respective multi-inlet valve (V49; Figure 3) having at least two valve inlets and at least one valve outlet, one of the valve inlets being configured for connection with a reactive precursor source (50; Figure 2), another of the valve inlets being configured for connection with a purge gas line; a purge gas inlet to Onda's plenum chamber (inherent - needed to convey gases in 41a) at Onda's first longitudinal axis end (bottom 41a; Figure 3) and upstream of all precursor inlet 49; Figure 3) to Onda's plenum chamber (inherent - needed to convey gases in 41a); Onda's purge gas stream including an elongated segment (piping for gas feeding connections to 70/71; Figure 3) joining with Onda's purge gas inlet and which is substantially aligned on Onda's longitudinal axis (axis of 41a; Figure 3); and Onda's body (41a; Figure 3) comprising a plenum chamber outlet (outlet portion, not labeled, of Onda's body) at Onda's second longitudinal axis end (top of 41a; Figure 3) configured to connect with a processing chamber (below 41a; Figure 3), as claimed by claim 45 – Applicant's claim of gas identity as being "purge gas" or "precursor gas" is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618

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F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- xx. Onda's manifold assembly (40; Figure 3) of claim 45 wherein the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet, as claimed by claim 46
- xxi. Onda's manifold assembly (40; Figure 3) of claim 48 wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 51
- xxii. Onda's manifold assembly (40; Figure 3) of claim 45 further comprising structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum chamber outlet (outlet portion, not labeled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), the respective multi-inlet valve (V49; Figure 3) when Onda's body (41a; Figure 3) is so mounted being at least partially received within peripheral lateral confines of a chamber housing of Onda's processing chamber (below 41a; Figure 3), as claimed by claim 52
- xxiii. Onda's manifold assembly (40; Figure 3) of claim 52 wherein the multi-inlet valve (V49; Figure 3) when Onda's body (41a; Figure 3) is so mounted are totally received within peripheral lateral confines of said chamber housing of the substrate processing chamber (below 41a; Figure 3), as claimed by claim 53

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- xxiv. Onda's manifold assembly (40; Figure 3) of claim 45 wherein Onda's plenum chamber (inherent - needed to convey gases in 41a) purge gas inlet is on Onda's longitudinal axis (axis of 41a; Figure 3), as claimed by claim 54
- xxv. Onda's manifold assembly (40; Figure 3) of claim 45 wherein, the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet - claim 55
- xxvi. Onda's manifold assembly (40; Figure 3) of claim 55 further comprising structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum chamber outlet (outlet portion, not labeled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), and wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 57
- xxvii. Onda's manifold assembly (40; Figure 3) of claim 45 wherein, the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet; structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum chamber outlet (outlet portion, not labeled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), Onda's structure (41a/41b interface; Figure 3) being configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's longitudinal axis (axis of 41a; Figure 3) being substantially vertical, as claimed by claim 58
- xxviii. Onda's manifold assembly (40; Figure 3) of claim 58 wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 60

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to make integral any of Srivastava's valves (any one of 36; Figure 1b) with Onda's 3-way valve (V49; Figure 3) and add a flange portion to Srivastava's body (10b; Figure 1b; column 3; lines 20-44) as taught by Onda.

Motivation to make integral any of Srivastava's valves with Onda's 3-way valve is for reducing material costs by combining three valves into one, while motivation to add a flange portion to Srivastava's body as taught by Onda is for creating a hermetic seal between Srivastava's body and Srivastava's processing chamber and the exterior environment as taught by Onda (column 7; lines 54-61). Further, it is established that the use of a one piece construction instead of interconnected components is obvious (In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965), MPEP 2144.04).

#### **(10) Response to Argument**

Applicant's initial arguments direct the Examiner to "review the Board of Patent Appeals and Interferences decision in Appeal Number 03-0877". In response, the Examiner deems his final rejection, his art of record, and now a decision before the BPAI completely sufficient in assessing the patentability of the present application.

Applicant states:

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In Appellant's response filed October 24, 2005, appellant requested direction to appropriate support for the Office's position regarding the inherency of a plenum chamber to allow appellant to fully address the issue.

“

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In response, the Examiner has repeatedly and succinctly described where, in the prior art, equivalents to all of Applicant's claimed elements as described above. Specifically, the Examiner has stated teaches Srivastava a "plenum chamber (inherent - needed to convey gases in 38)", where the Examiner interpreted "plenum chamber" directly from Applicant's specification, and more specifically, via Applicant's plenum chamber 14, Figure 1 – the vacuous portion of a pipe, the reason why a pipe exists, to convey a fluid. The Examiner cites Applicant's own "plenum chamber" (14; Figure 1; [0016]) as showing a pipe to convey gases. Further, the term "plenum"<sup>1</sup> is also well exemplified by Srivastava as Srivastava's plenum chamber (inherent - needed to convey gases in 38) is full of "matter", in this case, gases.

Applicant states, with respect to the Examiner's element citations of Srivastava:

“

In observing the referenced Fig. 1b, and reviewing the cited text at column 3, lines 20-44, it is clear that feature 10b, identified by Srivastava as the asher device, (col. 3, 11 10-1 1) includes feature 12 (identified as a gas box (col 3, 11 12). Accordingly, feature 12 cannot comprise feature 10b as interpreted by the Office. Further, nothing in the Office's statement identifies what portion of "body 10b" is being held by the Office to be the inherent plenum chamber as necessary "to convey gases in 38". Therefore, the rejection lacks sufficient clarity to allow Appellant to fully address the issues.

“

In response, the Examiner notes the difficulty in conveying Figure elements in the prior art that are sparsely labelled as in the case of Srivastava's Figure 1b. The Examiner's correspondance of

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<sup>1</sup> **Plenum: 1a.** a space or all space every part of which is full of matter. Merriam-Webster's Collegiate Dictionary -

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Srivastava's Figure 1b element numbers with the claimed elements is done strictly to demonstrate equivalents. That Srivastava gives seemingly disparate names with respect to the function assigned to Applicant's claimed elements, as suggested above by Applicant's, is, at best a distraction from the clear teaching, as shown in Srivastava's Figure 1b. To assist all parties the Examiner has added his notations to Srivastava's Figure 1b to more precisely convey equivalents and is supported by the Examiner's final rejection. For example, the Examiner's notation of "plenum chamber" in Srivastava's Figure 1b points directly to the Examiner's persistent citation of "plenum chamber (inherent - needed to convey gases in 38)" as cited in the final rejection.

With regard to Applicant's statement that the Examiner is treating Applicant's claimed "inlets" as intended use, Applicant is again mistaken. The Examiner directs the reader to the repeated conveyance in this and all previous actions, in the prior art, of Applicant's claimed "inlets". The Examiner only refers to Applicant's qualified gas identity before "gas inlets" as being an intended use feature. For Example: Srivastava's precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) – "precursor" is not weighed because this implies a gas identity which is not a structural limitation of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the



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claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

Applicant states that Srivastava does not teach Applicant's claimed "venturi effect": "...such that a purge-gas flow through the purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) provides a venturi effect within the plenum chamber (inherent - needed to convey gases in 38) relative to the first and second precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b)". That a "venturi effect" is present in Srivastava's body is evident when comparing the structure of Srivastava's body with Applicant's body 12, Figure 1. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

The Examiner finds complete structural parity, in both the claimed and unclaimed elements, between Srivastava and the instant invention. As a result, and as stated repeatedly, the Examiner must conclude that all functions (fluid conveyance) and properties ("venturi effect") resulting from the established structures both in the reference to Srivastava and in Applicant's Figure 1 are inherent as guided by the Examiner's above citations.

Applicant states:

“

Claim 31 additionally recites a plenum chamber outlet opposing the purge gas inlet where the body comprising the plenum chamber has a structure configured to mount the second end of the plenum chamber to a substrate processing chamber. Referring to Srivastava Fig. 1b which is indicated by the Examiner as being relied upon, it is noted that gas box 12 is depicted as being

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configured for providing gas into a plasma tube 32b. Such does not in any way disclose the claim 31 recited plenum chamber outlet disposed at a second end configured to connect with a substrate processing chamber.

“

In response, the Examiner has reassessed Srivastava's Fig. 1b which teaches a plenum chamber (inherent - needed to convey gases in 38) outlet (outlet portion, not labeled, of Srivastava's body) opposing the purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) where the body (10b; Figure 1b; column 3; lines 20-44) comprising the plenum chamber (inherent - needed to convey gases in 38) has a structure configured to mount the second end of the plenum chamber (inherent - needed to convey gases in 38) to a substrate processing chamber (16; Figure 1b). Applicant's "mount"<sup>2</sup> is interpreted by the Examiner as "fixed to" or "attached to". In Applicant's own words, the plenum chamber (inherent - needed to convey gases in 38) has a structure configured to mount, attached to, the second end of the plenum chamber (inherent - needed to convey gases in 38) to a substrate processing chamber (16; Figure 1b).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the level of ordinary skill in the art suggests that motivation to make integral any of

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<sup>2</sup> mount *vb* 6a. to attach to a support. Merriam-Webster's Collegiate Dictionary - 10th Ed. p.760

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Srivastava's valves with Onda's 3-way valve is for reducing material costs by combining three valves into one...Further, it is established that the use of a one piece construction instead of interconnected components is obvious (In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965), MPEP 2144.04).

Applicant states:

“

Claim 45 also recites that each of the precursor feed streams and purge gas stream comprises an elongated segment joining with its respective inlet, and that the purge gas stream elongated segment which joins with the purge gas inlet is substantially aligned on the longitudinal axis of the plenum chamber. At page 10-12 of the Action, the Office indicates reliance upon Srivastava as inherently disclosing a plenum chamber with a longitudinal axis, with such axis being identified by the Office as being the “axis of left-most piping 38 of 12” shown in Fig. 1b. The Office contends that the elongated sections Srivastava's upper five feeds are normal to the longitudinal axis, while the elongate portion of the sixth feed stream is substantially aligned on Srivastava's longitudinal axis. However, Fig 1b clearly depicts the referred to six feeds as being mutually parallel to one another. Accordingly, reliance upon Srivastava is in error as pertaining to this feature.

“

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., “while the elongate portion of the sixth feed stream is substantially aligned on Srivastava's longitudinal axis”) are not recited in the rejected claims. Although the claims are interpreted in light of the specification,

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limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further, the pertinent sections of claim 45 are reproduced and discussed:

“

an elongate body comprising an elongate plenum chamber, the plenum chamber having a longitudinal axis, the plenum chamber having a first longitudinal axis end and a second longitudinal axis end

“

As repeatedly addressed above. Srivastava's "elongate body comprising an elongate plenum chamber" is the vertical left-most pipe 38 of Srivastava's Figure 1b. See the Examiner's notes. That Srivastava's vertical left-most pipe 38 of Srivastava's Figure 1b has a "first longitudinal axis end and a second longitudinal axis end " is taken from the orientation of the longitudinal axis of Srivastava's vertical left-most pipe 38 of Srivastava's Figure 1b.

“

respective precursor feed streams on the body feeding to the plenum chamber precursor inlets, the respective precursor feed streams including an elongated segment joining with its plenum chamber precursor inlet and which is oriented substantially normal to the longitudinal axis;

“

As repeatedly addressed above, Srivastava teaches respective feed streams (immediate "T" branch point and upstream piping from left-most pipe 38 of Srivastava's Figure 1b) on the body (left-most pipe 38 of Srivastava's Figure 1b) feeding to the plenum chamber (left-most pipe 38 of Srivastava's Figure 1b) precursor inlets (oulets of "T" branch point from upstream piping

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from left-most pipe 38 of Srivastava's Figure 1b), the respective precursor feed streams (immediate "T" branch point and upstream piping from left-most pipe 38 of Srivastava's Figure 1b) including an elongated segment (piping immediately downstream of 36 closest to "T" branch point Srivastava's Figure 1b) joining with its plenum chamber precursor inlet and which is oriented substantially normal to the longitudinal axis.

And:

“

a purge gas stream on the body feeding to the purge gas inlet through a single-inlet valve, the purge gas stream including an elongated segment joining with the purge gas inlet and which is substantially aligned on the longitudinal axis

“

The Examiner has cited that Srivastava's purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) including an elongated segment (piping for gas feeding connections to left-most pipe 38; Figure 1b) joining with Srivastava's purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) and which is substantially aligned on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) of the plenum chamber (inherent - needed to convey gases in 38). Inclusive, Applicant's Figure 1 piping configuration is identical, pictorially and in claimed structure, to Srivastava's piping arrangement of 12, Figure 1b.

#### **(11) Related Proceedings Appendix**

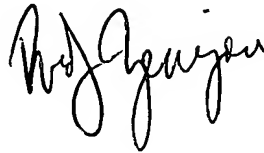
No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

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For the above reasons, it is believed that the rejections should be sustained.

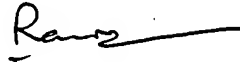
Respectfully submitted,

Rudy Zervigon (June 5, 2006)

 9/18/06

Conferees:

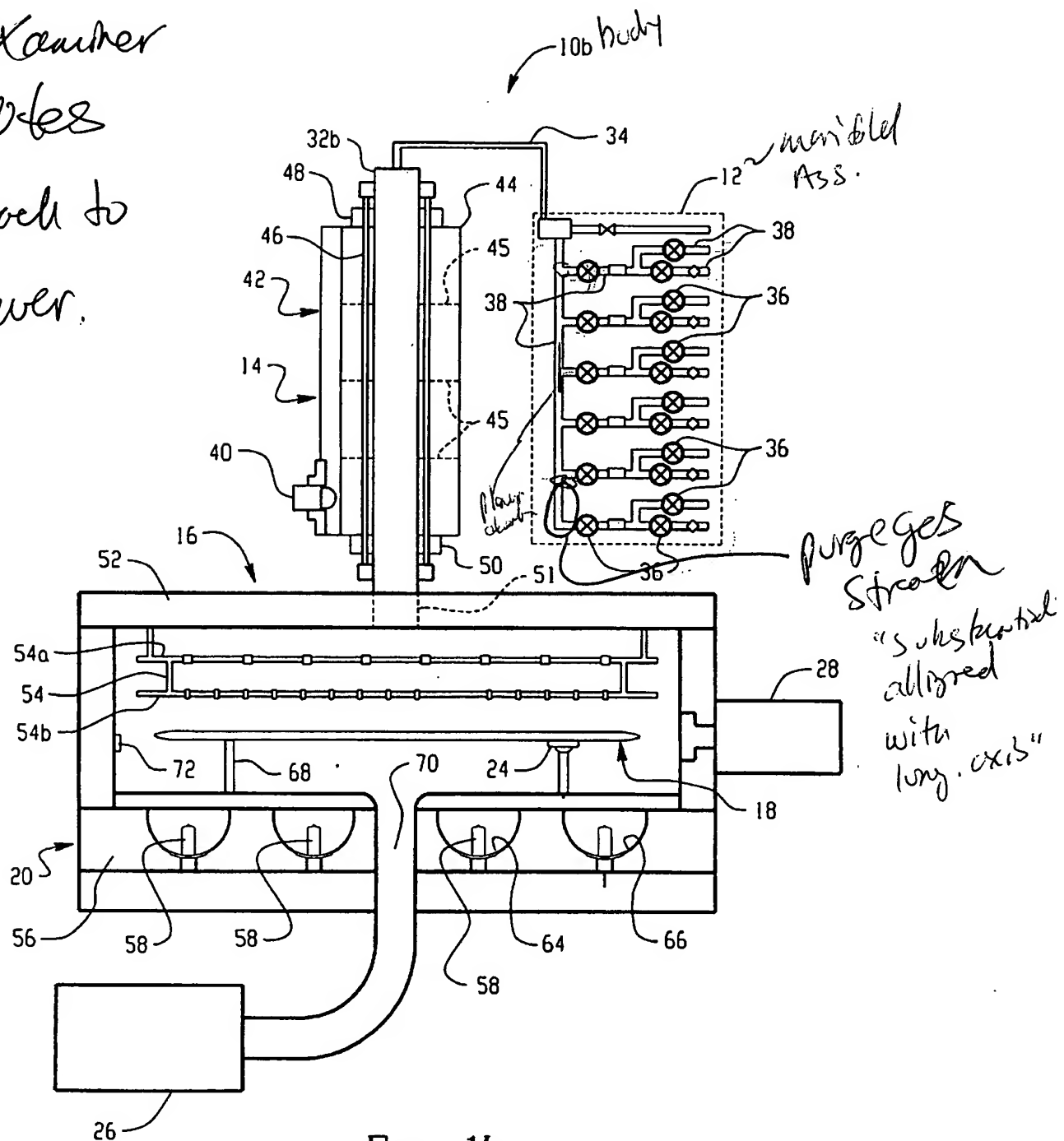
for Parviz Hassanzadeh (June 5, 2006)



Gregory Mills (June 5, 2006)



*Examiner  
Notes  
Attach to  
Answer.*



**Fig. 1b**  
PRIOR ART